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INDEX OF NUCLEAR WEAPON EFFECTS SIMULATORS

Field Command, Defense Nuclear Agency
FCT

Kirtland AFB, New Mexico 87115

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Internal Report

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DEFENSE NUCLEAR AGENCY

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This document provides a list of Nuclear Weapon Effects Simulators within the United States. A brief description is provided of each simulator along with point-of-contact and the responsible agency. <i>Keywords:</i>		

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SUMMARY

The purpose of this index is to provide a summary of nuclear weapon effects simulators within the United States. This is an index and not a detailed source document. As such, the emphasis has been to provide the simulator name, type, location and point of contact followed by a short description. The intent is to provide very brief information to allow the reader to determine if there is sufficient interest to contact the point of contact for more detailed information. This index can also be used for cursory familiarization on the basic characteristics of simulators for supervisory personnel or others new to the simulator community. The references listed at the conclusion of this index are also valuable documents for this purpose.

Effort has been made to make the listing as comprehensive as possible. The authors would appreciate any information on simulators which have not been included, in addition to, any corrections or updates to simulator capabilities. This information should be provided to:

Commander
Field Command, DNA
ATTN: FCTO
Kirtland AFB, NM 87115

The information in this document has been obtained from the reference list and through information provided from the point of contacts listed for each simulator. Information has been updated by the point of contact or, where current, summarized from the reference documents. The authors wish to thank all those who provided information for this index.

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TABLE OF CONTENTS

Section	Page
I RADIATION SIMULATORS	5
Advanced Test Accelerator (ATA).....	5
Air Force Weapons Laboratory (AFWL) Radiation Simulator.....	6
Annular Core Research Reactor.....	7
Army Pulse Radiation Division (APRD).....	9
Aurora.....	10
Berkley TRIGA Mark III.....	11
Blackjack 3/3'.....	12
Blackjack 5'.....	14
BREL Dynamitron Accelerator.....	15
BREL FX-75.....	16
BREL Gamma Exposure Facility.....	17
BREL LINAC.....	18
CASINO.....	19
Cesium 137 Facility.....	20
Co60 (HDL).....	21
EG&G LINAC.....	22
Experimental Test Accelerator (ETA).....	23
Febatron 705.....	24
Febatron 706.....	25
EG&G Flash X-Ray Facility.....	26
Fast Burst Reactor (FBR).....	27
Gamma Irradiation Facility (GIF).....	28
Gamma Radiation Facility (GRF).....	30
General Atomic Company TRIGA Reactor Facility.....	32
Heavy Ion Accelerator.. ..	33
High-Energy Radiation Megavolt Electron Source II (HERMES II).....	34
High Intensity Flash X-Ray (HIFX) Facility.....	36
Hydra-HydraMITE Facility.....	37
Ion Physics FX-35 Electron Beam Accelerator.....	39
IRT LINAC.....	40
KAMAN Sciences Corporation (KSC) Flash X-Ray Facility.....	41
Kansas State University (KSU) TRIGA Mark II.....	42
LANL P-ERMEX.....	43
Lawrence Livermore National Laboratory (LLNL) Flash X-Ray Facility... ..	44
Linear Electron Accelerator (LINAC).....	45
Modular Bremsstrahlung Source (MBS) Maxwell Lab, Inc.....	46
Modular Bremsstrahlung Source (MBS) Physics International Co.....	47
Navy Surface Weapons Center/White Oak Laboratory (NSWC/WOL) Flash X-Ray Facility.....	48
Northrup Reactor Facility (TRIGA Mark F).....	49
Northrup Research and Technology FXR Facility.....	50
NRL LINAC.....	51
Ogden Air Logistics Command (ALC) LINAC.....	52
OWL II.....	53
Pelletron Accelerator.....	54
Pennsylvania State University (PSU) Breazela Nuclear Reactor.....	55
PIMBS CABLE TEST FACILITY.....	56

TABLE OF CONTENTS (Continued)

<u>Section</u>	<u>Page</u>
PIMBS II (Physics International Modular Bremsstrahlung Source).....	57
PITHON.....	58
POCOBEAM.....	60
Proto I.....	61
Proto II.....	63
PULSERAD 225W (CAMEL).....	65
PULSERAD 737.....	66
PULSERAD 1150.....	67
Raytheon Radiation Facility.....	68
Relativistic Electron Beam Accelerator (REBA).....	69
Research Triangle Institute FXR Facility.....	70
Rome Air Development Center Flash X-Ray (FXR) Facility.....	71
Rome Air Development Center (RADC) LINAC.....	72
RPI LINAC.....	73
Sandia Pulse Reactor II (SPR-II).....	74
Sandia Pulse Reactor III (SPR-III).....	76
Short Pulse Electron Emission Device (SPEED).....	78
SPI-PULSE 6000.....	80
Steady State Neutron Generator (SNG).....	81
SUPER KUKLA Reactor Facility.....	82
University of Texas (UT) at Austin TRIGA Mark I.....	83
University of Wisconsin TRIGA Nuclear Reactor Facility.....	84
Washington State University (WSU) Reactor.....	85
 II BLAST AND SHOCK	 86
Blast/Fire Shock Tube (SRIT).....	86
Blast Load Generator (BLG).....	87
C ² Simulator.....	88
CALSPAN In-Flight Blast Simulator.....	89
Combined Response Effects Simulator Tester (CREST).....	90
Compressed Gas Guns (AFWL).....	91
DASACON Shock Tube.....	92
Genisco Rotary Accelerator (AFWL).....	93
Giant Reusable Airblast Simulator (GRABS).....	94
High Explosive Model Structures Simulator (HEMSS).....	95
Little Mountain Shock and Vibration Laboratory.....	96
Lovelace 3.05M Blast Simulator.....	97
Magnetically and Gas Driven Flyer Plates (KSC).....	98
Multiburst Airblast Test Facility.....	100
Near Source Simulator (NSS).....	101
NSAC 0.76m Conical Shock Tube (CST).....	102
Partially Vented Chamber.....	103
PHETS.....	104
Shock Block.....	105
Shock Tubes (AFWL).....	106
Shock Tubes (BRL).....	107
Standoff Airblast Simulator (STABS).....	108
Tracy Test Site.....	109

TABLE OF CONTENTS (Continued)

<u>Section</u>	<u>Page</u>
III EMP	110
Advanced Research EMP Simulation (ARES) Facility.....	110
AFWL Los Alamos EMP Calibration and Simulation (ALECS) Facility.....	111
CW Measurement System (CWMS).....	112
EMP Direct Drive Facility.....	113
EMP Radiation Environment Simulator for Ships (EMPRESS).....	114
Horizontally Polarized Dipole (HPD) Facility.....	115
KAYAK (Small Parallel-Plate EMP Simulator).....	116
Large Indoor Parallel-Plate EMP Simulator.....	117
Long Wire Facility.....	118
Medium Size Parallel-Plate EMP Simulator.....	119
Parallel-Plate EMP Simulator.....	120
Repetitive EMP Simulator (REPS).....	121
Repetitive Pulse Generator (RPG).....	122
"Suitcase" Pulser.....	123
Transportable EMP Simulator (TEMPS).....	124
TRESTLE Facility.....	125
Vertical EMP Simulator (VEMPS).....	126
Vertically Polarized Dipole (VPD-II) Facility.....	127
White Sands EMP Systems Array (WESTA).....	128
IV THERMAL	129
DNA Thermal Radiation Source (TRS).....	129
Science Applications, Inc. (SAI) High-Flux TRS.....	130
Sandia Thunder Range Blast Simulators.....	131
TRI-Service Thermal Radiation Facility.....	132
White Sands Missile Range Solar Facility.....	133
Wright-Patterson AFB, Thermal Radiation Simulators (TRS).....	134

I RADIATION SIMULATORS

SIMULATOR: Advanced Test Accelerator (ATA)
TYPE: Radiation
AGENCY: Defense Advanced Research Projects Agency (DARPA)
LOCATION: Lawrence Livermore National Laboratory - Site 300
POINT OF CONTACT: Richard J. Briggs
LLNL
P.O. Box 808
Livermore, CA 94550
Phone: (415) 422-7880

DESCRIPTION:

The ATA is an electron linear induction accelerator.

SIMULATOR: Air Force Weapons Laboratory (AFWL)
Radiation Simulators

TYPE: Radiation

AGENCY: US Air Force

LOCATION: Kirtland AFB, NM

POINT OF CONTACT: Mr. Roger Tallon
AFWL/NTC
Kirtland AFB, NM 87115
Phone: (505) 844-0316

DESCRIPTION:

AFWL has several radiation sources. They include a Co60 source, a FEBATRON 705, PULSERAD 1590, and the SHIVA STAR facility. .1

SIMULATOR: Annular Core Research Reactor
TYPE: Radiation
AGENCY: Department of Energy
LOCATION: Sandia National Laboratory, Albuquerque
POINT OF CONTACT: L. D. Posey - Division 4452
Sandia National Laboratory, Albuquerque
Albuquerque, NM 87117
(505) 844-7432

Experimenter's manual containing detailed information available upon request.

DESCRIPTION:

The ACRR is a swimming pool reactor designed and constructed by Sandia Laboratories. (The ACRR replaces the former Annular Core Pulse Reactor (ACPR) and occupies the same facility)

SIMULATOR:

Army Pulse Radiation Division (APRD)

TYPE:

Radiation

AGENCY:

Army

LOCATION:

Material Test Division
Aberdeen Proving Ground, MD

POINT OF CONTACT:

Commander
U.S. Army Aberdeen Proving Ground
ATTN: STEAP-MT-R
Aberdeen Proving Ground, MD 21005
A. H. Kazi AV 283-4881
(301) 278-4881

SIMULATOR: AURORA
TYPE: Radiation
AGENCY: DNA
LOCATION: Harry Diamond Laboratories
POINT OF CONTACT: Denis A. Whittaker
Harry Diamond Laboratories, AURORA Facility
2800 Powder Mill Road
Adelphi, MD 20783

SIMULATOR: Berkeley TRIGA Mark III
TYPE: Radiation
AGENCY: University of California
LOCATION: University of California at Berkeley, California
POINT OF CONTACT: T. H. Lin, Reactor Supervisor
TRIGA III Berkeley Research Reactor
Department of Nuclear Engineering
University of California
Berkeley, CA 94720

DESCRIPTION:

The Facility is a TRIGA Mark III reactor

SIMULATOR:

BLACKJACK 3/3'

TYPE:

X-ray and Electron Beam Radiation

AGENCY:

Defense Nuclear Agency

LOCATION:

Maxwell Laboratories, Inc.,
San Diego, CA

POINT OF CONTACT:

Manager, Radiation Physics Department
Maxwell Laboratories, Inc.
8835 Balboa Avenue
San Diego, CA 92123
(619) 279-5100 ext. 120

SIMULATOR:

BLACKJACK 5'

TYPE:

X-ray Radiation

AGENCY:

Defense Nuclear Agency

LOCATION:

Maxwell Laboratories, Inc.,
San Diego, CA

POINT OF CONTACT:

Manager, Radiation Physics Department
Maxwell Laboratories, Inc.
8835 Balboa Avenue
San Diego, CA 92123
(619) 279-5100 ext. 120

DESCRIPTION:

SIMULATOR: BREL Dynamitron Accelerator
TYPE: Radiation
AGENCY: Boeing Aerospace Company
LOCATION: Seattle, Washington
POINT OF CONTACT: C. Rosenberg
Boeing Aerospace Company
Boeing Radiation Effects Laboratory
P.O. Box 3999 (M/S LR-00)
Seattle, Washington 98124
(206) 655-1056

DESCRIPTION:

SIMULATOR:

BREL FX-75

TYPE:

Radiation

AGENCY:

Boeing Aerospace Company

LOCATION:

Seattle, Washington

POINT OF CONTACT:

C. Rosenberg Boeing Aerospace Company
Boeing Radiation Effects Laboratory (BREL)
P.O. Box 3999 (M/S 2R-00)
Seattle, WA 98124
Phone: (206) 655-1056

DESCRIPTION:

SIMULATOR: BREL Gamma Exposure Facility
TYPE: Radiation
AGENCY: Seattle, Washington
LOCATION: Boeing Aerospace Company
POINT OF CONTACT: C. Rosenberg
Boeing Aerospace Company
Boeing Radiation Effects Laboratory
P.O. Box 3999 (M/S 2P-00)
Seattle, Washington 98124
Telephone: (206) 655-1056

DESCRIPTION:

The Boeing Effects Laboratory (BREL) gamma exposure facilities consist of two Atomic Energy of Canada's Gammacell 220's, one Atomic Energy of Canada's Gammacell 200 and a free-field gamma facility.

SIMULATOR:

BREL LINAC

TYPE:

Radiation

AGENCY:

Boeing Aerospace Company

LOCATION:

Seattle, WA

POINT OF CONTACT:

C. Rosenberg
Boeing Aerospace Company
Boeing Radiation Effects Laboratory (BREL)
P.O. Box 3999 (M/S 2R-00)
Seattle, WA 98124
Phone: (206) 655-1056

DESCRIPTION:

SIMULATOR: CASINO
TYPE: Radiation
AGENCY: US Navy
LOCATION: Naval Surface Weapons Center
White Oak, Silver Spring, Maryland 20910
POINT OF CONTACT: Richard A. Smith (202) 394-1878
Van L. Kenyon (202) 394-1889

DESCRIPTION:

The Casino Facility is sponsored by the Defense Nuclear Agency (DNA) to provide the Department of Defense (DOD) with the capability of simulating those electrical and mechanical effects in materials,

SIMULATOR: Cesium 137 Facility
TYPE: Radiation
AGENCY: US Army
LOCATION: Ft. Monmouth, NJ
POINT OF CONTACT: Stanley Kronengerg
(201) 544-5445
Autovon: 996-5445

DESCRIPTION:

SIMULATOR: Co60
TYPE: Gamma Radiation Source
AGENCY: US Army
LOCATION: Harry Diamond Laboratories
POINT OF CONTACT: Klaus Kerris
Harry Diamond Laboratories
2800 Powder Mill Road
Adelphi, MD 20783
(202) 394-2290
Autovon: 290-2290

DESCRIPTION:

SIMULATOR: EG&G LINAC
TYPE: Radiation
AGENCY: EG&G
LOCATION: Santa Barbara, CA
POINT OF CONTACT: Lonnie P. Hocker
EG&G Inc.
130 Robin Hill Rd.
Goleta, CA 93017
Phone: (805) 967-0456

DESCRIPTION:

SIMULATOR: Experimental Test Accelerator (ETA)
TYPE: Radiation
AGENCY: Defense Advanced Research Projects Agency
(DARPA)
LOCATION: Lawrence Livermore National Laboratory
POINT OF CONTACT: Richard J. Briggs
LLNL
P.O. Box 808
Livermore, CA 94550
Phone: (415) 422-7880

DESCRIPTION:

The ETA is an electron linear induction accelerator.

SIMULATOR: Febatron 705

TYPE: Radiation

AGENCY: These machines are operated by several agencies

LOCATION: Febatron locations and Point of Contact are listed under the facility name.

POINT OF CONTACT: (See following pages)

DESCRIPTION:

The Febatron 705 can be operated in an electron beam or flash X-ray mode.

SIMULATOR: Febatron 706
TYPE: Radiation
AGENCY: These machines are operated by several agencies
LOCATION: Febatron locations and Points of Contact are listed under the facility name.
POINT OF CONTACT: (See following pages)

DESCRIPTION:

The Febatron 706 is a field emission diode characterized by large current and small size.

SIMULATOR: EG&G Flash X-Ray Facility
TYPE: Radiation
AGENCY: Contractor
LOCATION: Goleta, CA
POINT OF CONTACT: Lonnie P. Kocker
EG&G
130 Robin Hill Road
Goleta, CA 93017
(805) 967-0456

DESCRIPTION:

The facility has a Febatron 705 and 706. See page 22 and 23 for description.

SIMULATOR: Fast Burst Reactor (FBR)
TYPE: Radiation
AGENCY: US Army
LOCATION: Nuclear Weapon Effects Laboratory
White Sands Missile Range, NM
POINT OF CONTACT: Nuclear Weapon Effects Laboratory
STEWIS-TE-AN (Mr. R. Penny)
White Sands Missile Range, NM 88002
Phone: (505) 678-1161
Autovon: 258-1161
FTS: 898-1161

DESCRIPTION:

SIMULATOR: Gamma Irradiation Facility (GIF)
TYPE: Radiation
AGENCY: Department of Energy
LOCATION: Sandia National Laboratory, Albuquerque
POINT OF CONTACT: L. D. Posey - Division 4452
Sandia National Laboratory, Albuquerque
P.O. Box 5800
Albuquerque, NM 87115
Phone: (505) 844-7432

Experimenter's manual containing detailed information available upon request.

DESCRIPTION:

The GIF, a gamma radiation source, consists of two adjoining radiation cells situated over a 6-m-deep pool of demineralized water.

PERFORMANCE CHARACTERISTICS:

NOMINAL OPERATING PARAMETERS

^{60}Co

Source Strength	112 kilocuries (May 1979)
Half Life	5.26 years
Gamma Energy	1.17, 1.33 MeV
Doses	*
Maximum Dose Rate at Source Array Center	2.8×10^2 rads (Si)/s

^{137}Cs

Source Strength	200 kilocuries (Sep 1976)
Half Life	30.2 years
Gamma Energy	0.66 MeV
Doses	*

*Doses are dependent upon source configuration and experiment location.

SIMULATOR: Gamma Radiation Facility (GRF)
TYPE: Radiation
AGENCY: US Army
LOCATION: Nuclear Weapon Effects Laboratory, WSMR, NM
POINT OF CONTACT: Nuclear Weapon Effects Laboratory
STEWIS-TE-AN (Mr. R. Penny)
WSMR, NM 88002
(505) 678-1161
Autovon: 258-1161
FTS: 898-1161

DESCRIPTION:

SIMULATOR: General Atomic Company TRIGA Reactor Facility
TYPE: Radiation
AGENCY: General Atomic Company
LOCATION: San Diego, CA
POINT OF CONTACT: General Atomic Company
TRIGA Reactor Facility
P.O. Box 81608
San Diego, CA 92138
ATTN: Mr. J. R. Shoplaugh
Phone: (714) 455-3277

DESCRIPTION:

The General Atomic Reactor Facility consists of 2 reactors; a TRIGA Mark I and the advanced TRIGA Prototype Reactor (ATPR). Both reactors can be operated simultaneously.

SIMULATOR: Heavy Ion Accelerator
TYPE: Radiation
AGENCY: Department of Energy
LOCATION: Sandia National Laboratories -
Albuquerque (SNLA)
POINT OF CONTACT: W. Bezhold - Division 4232
Sandia National Laboratories -
Albuquerque
P.O. Box 5800
Albuquerque, NM 87115
Phone: (505) 844-7830

Experimenters manual containing detailed information available upon request.

DESCRIPTION:

The Heavy Ion Accelerator is a 100-kV DC, 25 mA positive ion beam generator.

SIMULATOR: High-Energy Radiation Megavolt Electron
Source II (HERMES II)

TYPE: Radiation

AGENCY: Department of Energy

LOCATION: Sandia National Laboratory, Albuquerque

POINT OF CONTACT: W. Bezhold - Division 4232
Sandia National Laboratory, Albuquerque
Albuquerque, NM 87117
(505) 844-7830

Experimenter's manual containing detailed information available upon request.

DESCRIPTION:

The HERMES-II is a high-energy, pulsed, field-emission electron-beam or bremsstrahlung x-ray source. It was designed and constructed by Sandia Laboratories

15
n²
/s

SIMULATOR: High Intensity Flash X-Ray (HIFX)
Facility

TYPE: Radiation

AGENCY: Army

LOCATION: Harry Diamond Laboratories

POINT OF CONTACT: Harry Diamond Laboratories
ATTN: Klaus Kerris
2800 Powder Mill Road
Adelphi, MD 20783
Phone: (202) 394-2290
Autovon: 290-2290

SIMULATOR: Hydra-Hydr-MITE Facility
TYPE: Radiation
AGENCY: Department of Energy
LOCATION: Sandia National Laboratories -
Albuquerque
POINT OF CONTACT: W. Bezhold - Division 4232
Sandia National Laboratories -
Albuquerque
P.O. Box 5800
Albuquerque, NM 87115
Phone: (505) 844-7830

SIMULATOR: Ion Physics FX-35 Electron Beam Accelerator

TYPE: Radiation

AGENCY: Ion Physics Corporation

LOCATION: Burlington, MA

POINT OF CONTACT: Ion Physics Corporation
ATTN: Mr. Robert Evans (Radiation Effects Section)
P.O. Box 416
South Redford Street
Burlington, MA 01803
Phone: (617) 272-2800 Ext. 292

DESCRIPTION:

The FX-35 can be used in either the electron mode or bremsstrahlung x-ray mode.

SIMULATOR:

IRT LINAC

TYPE:

Radiation

AGENCY:

San Diego, CA

LOCATION:

IRT

POINT OF CONTACT:

Don Willis or John Harrity
7695 Formula Place
San Diego, CA 92121
Telephone (714) 271-6320

SIMULATOR:

KAMAN Sciences Corporation (KSC)
Flash X-Ray Facility

TYPE:

Radiation

AGENCY:

Navy

LOCATION:

Colorado Springs, CO

POINT OF CONTACT:

Donald Bryce
KAMAN Sciences Corporation
1500 Garden of the Gods Road
Colorado Springs, CO 80933

SIMULATOR: Kansas State University (KSU)
TRIGA Mark II

TYPE: Radiation

AGENCY: KSU

LOCATION: KSU, Manhattan, KS

POINT OF CONTACT: Richard E. Faw, Director
KSU Nuclear Reactor Facility
Ward Hall
Kansas State University
Manhattan, KS 66506

DESCRIPTION:

The facility uses a TRIGA Mark II thermal reactor

SIMULATOR:

LANL PHERMEX

TYPE:

Radiation

AGENCY:

Department of Energy

LOCATION:

Los Alamos National Laboratory

POINT OF CONTACT:

Los Alamos National Laboratory
P.O. Box 1663
Los Alamos, NM 87545

DESCRIPTION:

PERMEX is a high current, high energy, standing wave electron accelerator

SIMULATOR:

Lawrence Livermore National Laboratory
(LLNL) Flash X-Ray Facility

TYPE:

Radiation

AGENCY:

DOE

LOCATION:

LLNL, Livermore, CA

POINT OF CONTACT:

Bernard Kulke or David Goosman
M/S LC68
Lawrence Livermore National Laboratory
Telephone: (415) 422-8625

DESCRIPTION:

The flash X-Ray machine is a linear induction accelerator

SIMULATOR: Linear Electron Accelerator (LINAC)
TYPE: Radiation
AGENCY: US Army
LOCATION: Nuclear Weapon Effects Laboratory, WSMR, NM
POINT OF CONTACT: Nuclear Weapon Effects Laboratory
STEWs-TE-AN (Mr. R. Penny)
WSMR, NM 88002
(505) 678-1161
Autovon: 258-1161
FTS: 898-1161

SIMULATOR: Modular Bremsstrahlung Source (MBS)
TYPE: X-ray Radiation
AGENCY: Defense Nuclear Agency
LOCATION: Maxwell Laboratories, Inc., San Diego, CA
POINT OF CONTACT: Manager, Radiation Physics Department
Maxwell Laboratories, Inc.
8835 Balboa Avenue
San Diego, CA 92123
(619) 279-5100 ext. 170

DESCRIPTION:

The DNA/Maxwell Modular Bremsstrahlung Source (MBS) is a dual facility photon source used for X-ray testing. The facility consists of two separate experimental capabilities. Each of the two facilities ("MBS-7" and "MES-1")

SIMULATOR: MODULAR BREMSSTRAHLUNG SOURCE (MBS)
TYPE: Radiation
OWNER: Defense Nuclear Agency (DNA)
LOCATION: Physics International Company (PIC)
CONTACT: C. Stallings, Director
Radiation Simulator Product Line
Office
Physics International Company
2700 Merced Street
San Leandro, CA 94577
(415) 577-7111

DESCRIPTION:

The MBS facility was designed and built for the Defense Nuclear Agency by Physics International Company. It is made up of eight (8) low voltage

SIMULATOR: Navy Surface Weapons Center/White Oak
Laboratory (NSWC/WOL) Flash X-Ray
Facility

TYPE: Radiation

AGENCY: Navy

LOCATION: NSWC Silver Spring, MD

POINT OF CONTACT: Mr. R. A. Smith or Mr. Van L. Kenyon
NSWC/WOL
Silver Spring, MD 20910
Phone: (202) 394-1878
Autovon: 290-1878

DESCRIPTION:

The Navy operates two Febatron 705 machines, one Febatron 706 machine and a small 2000 curie Co_{60} source at this facility. The characteristics of the Febatron machines are listed on pages 22 and 23.

SIMULATOR: Northrup Reactor Facility (TRIGA Mark F)
TYPE: Radiation
AGENCY: Northrup
LOCATION: Hawthorne, CA
POINT OF CONTACT: Chief, Northrup Reactor
Northrup Research and Technology Center
3401 West Broadway
Hawthorne, CA 90250
(213) 970-2297

DESCRIPTION:

The reactor is a TRIGA Mark F.

SIMULATOR: Northrup Research and Technology FXR Facility
TYPE: Radiation
AGENCY: Northrup
LOCATION: Northrup Research and Technology Center
Hawthorne, CA
POINT OF CONTACT: Northrup Research and Technology Center
Chief, Northrup Reactor
3401 W. Broadway
Hawthorne, CA
(213) 940-2297

DESCRIPTION

This facility contains a Febatron 705 flash X-ray machine. The Febatron 705 can be operated in an electron beam or X-ray mode.

SIMULATOR:

NRL LINAC

TYPE:

Radiation

AGENCY:

Navy

LOCATION:

NRL, Washington, DC

POINT OF CONTACT:

Dr. Robert M. Farr
Code 6620
Naval Research Laboratory
Washington, DC 20375
Phone. (202) 767-3938

DESCRIPTION:

SIMULATOR: Ogden Air Logistics Command (ALC)
LINAC

TYPE: Radiation

AGENCY: Air Force

LOCATION: Little Mountain Test Annex (LMTA)
Hill AFB, UT

POINT OF CONTACT: Little Mountain Facility Manager
ATTN: Mr. Schofield - MMETT
Hill AFB, UT 84056
Phone: (801) 777-8248
Autovon: 458-8248

DESCRIPTION:

SIMULATOR: OWL II
TYPE: Radiation
OWNER: Physics International Company (PI)
LOCATION: Physics International Company (PI)
POINT OF CONTACT: G. D. Guthrie
Manager, Radiation Tech. Dept.
Physics International Company
2700 Merced Street
San Leandro, CA 94577
(415) 577-7160

DESCRIPTION:

The OWL II facility was designed and built by Physics International Company for the Defense Nuclear Agency. Its original purpose was development of a water insulated coaxial transmission line, but was converted in 1973 to an electron beam simulator

SIMULATOR: Pelletron Accelerator
TYPE: Radiation
AGENCY: Department of Energy
LOCATION: Sandia National Laboratory -
Albuquerque
POINT OF CONTACT: W. Bezhold - Division 4232
Sandia National Laboratory,
Albuquerque
P.O. Box 5800
Albuquerque, NM 87115
Phone: (505) 844-7630

DESCRIPTION:

The Pelletron Accelerator is a MeV, 34 μ A electron-beam generator. It was designed and constructed by National Electrostatics Corporation for Sandia Laboratories as a support facility for the radiation-effects simulation

SIMULATOR: Pennsylvania State University (PSU)
Brezela Nuclear Reactor

TYPE: Radiation

AGENCY: PSU

LOCATION: PSU, University Park, PA

POINT OF CONTACT: Director
Brezela Nuclear Reactor Facility
Pennsylvania State University
University Park, PA 16802
(814) 865-6351

DESCRIPTION:

SIMULATOR: PIMBS CABLE TEST FACILITY
TYPE: Radiation
AGENCY: Air Force Weapons Laboratory (AFWL)
LOCATION: Physics International Company (PIC)
POINT OF CONTACT: Vic Carboni
Physics International Company
2700 Merced Street
San Leandro, CA 94577
(415) 357-4610

DESCRIPTION:

The cable test facility is a large area bremsstrahlung X-ray source that was designed and constructed by Physics International for AFWL.

SIMULATOR: PIMBS II (Physics International
Modular Bremsstrahlung Source)

TYPE: Radiation

AGENCY: Air Force Weapons Laboratory (AFWL)

LOCATION: Physics International Company (PIC)

POINT OF CONTACT: Vic Carboni
Physics International Company
2700 Merced Street
San Leandro, CA 94577
(415) 357-4610

DESCRIPTION:

The PIMBS II facility is a large area bremsstrahlung X-ray source designed and constructed by Physics International for AFWL.

SIMULATOR: PITHON
TYPE: Radiation
OWNER: Defense Nuclear Agency (DNA)
LOCATION: Physics International Company (PIC)
CONTACT: C. Gilman, Manager
Advanced Concepts Program
2700 Merced Street
San Leandro, CA 94577
(415) 577-7124

DESCRIPTION:

The PITHON generator was designed and built for the Defense Nuclear Agency by Physics International Company.



SIMULATOR: POCOBEM

TYPE: X-ray and Electron Beam Radiation

AGENCY: Defense Nuclear Agency

LOCATION: Maxwell Laboratories, Inc., San Diego, CA

POINT OF CONTACT: Manager, Radiation Physics Department
Maxwell Laboratories, Inc.
8835 Balboa Avenue
San Diego, CA 92123
(619) 279-5100 ext. 120

DESCRIPTION:

SIMULATOR:

PROTO I

TYPE:

Radiation

AGENCY:

Department of Energy

LOCATION:

Sandia National Laboratories, Albuquerque

POINT OF CONTACT:

W. Bezhold - Division 4232
Sandia National Laboratories - Albuquerque
Albuquerque, NM
Phone: (505) 264-7830

DESCRIPTION:

Performance Characteristics

Nominal Operating Parameters

SIMULATOR: Proto II
TYPE: Radiation
AGENCY: Department of Energy
LOCATION: Sandia National Laboratories -
Albuquerque
POINT OF CONTACT: W. Bezhold - Division 4232
Sandia National Laboratories,
Albuquerque
P.O. Box 5800
Albuquerque, NM 87115
Phone: (505) 844-7830

Experimenter's manual containing detailed information available upon request.

DESCRIPTION:

The Proto II is a high-power, short-pulse source for electron-beam production and bremsstrahlung x-ray generation. It was designed and constructed by Sandia Laboratories

Performance Characteristics

Nominal Operating Parameters

SIMULATOR: PULSERAD 225W (CAMEL)
TYPE: Radiation
OWNER: Physics International Company (PI)
LOCATION: Physics International Company (PI)
POINT OF CONTACT: G. D. Guthrie
Manager, Radiation Tech. Dept.
Physics International Company
2700 Merced Street
San Leandro, CA 94577
(415) 577-7160

DESCRIPTION:

The CAMEL facility was designed and built by Physics International Company to generate an intense electron beam of very short duration. The

SIMULATOR: PULSERAD 737
TYPE: Radiation
OWNER: Physics International Company (PI)
LOCATION: Physics International Company (PI)
POINT OF CONTACT: G. D. Guthrie
Manager, Radiation Tech. Dept.
Physics International Company
2700 Merced Street
San Leandro, CA 94577
(415) 577-7160

DESCRIPTION:

The PULSERAD 737 facility was designed and built by Physics International Company to generate an intense electron beam of very short duration.

SIMULATOR: PULSERAD 1150
TYPE: Radiation
OWNER: Physics International Company (PI)
LOCATION: Physics International Company (PI)
POINT OF CONTACT: G. D. Guthrie
Manager, Radiation Tech. Dept.
Physics International Company
2700 Merced Street
San Leandro, CA 94577
(415) 577-7160

DESCRIPTION:

The PULSERAD 1150 facility was designed and built by Physics International Company to generate an intense electron beam of very short duration.

SIMULATOR: Raytheon Radiation Facility
TYPE: Radiation
AGENCY: Raytheon
LOCATION: Sudbury, MA
POINT OF CONTACT: Raytheon Equipment Development Laboratory
ATTN: H. L. Flescher
528 Boston Post Road
Sudbury, MA 01776
(617) 443-9521 Ext. 2531

DESCRIPTION:

The Raytheon Radiation Facility has two FXR machines which provide complimentary capability in that they have different emission energies and pulse widths. The machines are a Field Emission Corporation Model 730/2650 and an Ion Physics (I-P) FX-25.

SIMULATOR: Relativistic Electron Beam Accelerator (RERA)
TYPE: Radiation
AGENCY: Department of Energy
LOCATION: Sandia National Laboratory, Albuquerque
POINT OF CONTACT: W. Brezhold - Division 4232
Sandia National Laboratory, Albuquerque
Albuquerque, NM 87117
(505) 841-7830

DESCRIPTION:

The REBA is a high-energy, pulsed, field-emission electron-beam or bremsstrahlung X-ray source. It was designed and constructed by Sandia Laboratories to provide an energy source of short duration

SIMULATOR: Research Triangle Institute FXR Facility
TYPE: Radiation
AGENCY: Contractor
LOCATION: Research Triangle Park, NC
POINT OF CONTACT: Dr. Mayrant Simons
P.O. Box 12194
Research Triangle Park, NC 27709
(919) 541-5933

DESCRIPTION:

The facility has a Febatron 706 with a 5515 tube. A description of the Febatron 706 is provided on page 23. A Cobalt-60 source is also available.

SIMULATOR: Rome Air Development Center Flash X-Ray
(FXR) Facility

TYPE: Radiation

AGENCY: US Air Force

LOCATION: Hanscom AFB, MA

POINT OF CONTACT: RADC/ESR, Stop 30 (Bldg 1126)
ATTN: Lester F. Lowe
Hanscom AFB, MA 01731
(617) 861-3445

DESCRIPTION:

The FXR machine is a Physics International (PI) Model 014.

SIMULATOR: Rome Air Development Center (RADC) LINAC
TYPE: Radiation
AGENCY: US Air Force
LOCATION: Hanscom AFB, MA
POINT OF CONTACT: RADC/ESR, Stop 30 (Bldg 1126)
ATTN: Lester F. Lowe
Hanscom AFB, MA 01731
(617) 861-3445

DESCRIPTION:

SIMULATOR: RPI LINAC
TYPE: Radiation
AGENCY: Troy, NY
LOCATION: Rensselaer Polytechnic Institute (RPI)
POINT OF CONTACT: R. C. Black, Director
Gaertner LINAC Laboratory
NES Bldg
Tibbitts Avenue
RPI
Department of Nuclear Engineering
Troy, NY 12181

DESCRIPTION:

SIMULATOR: Sandia Pulse Reactor II (SPR-II)
TYPE: Radiation
AGENCY: Department of Energy
LOCATION: Sandia National Laboratory, Albuquerque
POINT OF CONTACT: L. D. Posey - Division 4452
Sandia National Laboratory, Albuquerque
P.O. Box 5800
Albuquerque, NM 87115
Phone: (505) 844-7432

Experimenters manual containing detailed information available upon request.

DESCRIPTION:

PERFORMANCE CHARACTERISTICS

MAXIMUM NOMINAL OPERATING PARAMETERS

SIMULATOR: Sandia Pulse Reactor III (SPR-III)
TYPE: Radiation
AGENCY: Department of Energy
LOCATION: Sandia National Laboratory, Albuquerque
POINT OF CONTACT: L. D. Posey - Division 4452
Sandia National Laboratory, Albuquerque
P.O. Box 5800
Albuquerque, NM 87115
Phone: (505) 844-7432

Experimenter's manual containing detailed information available upon request.

DESCRIPTION:

The SPR-II reactor is a fast-burner reactor designed and constructed

PERFORMANCE CHARACTERISTICS (Pulse Operation)

SIMULATOR: Short Pulse Electron Emission Device (SPEED)
TYPE: Radiation
AGENCY: DOE
LOCATION: Kirtland AFB, NM
POINT OF CONTACT: W. Benzhold - DIVISION 4232
Sandia National Laboratories, Albuquerque
Phone: (505) 264-7830

Experimenter's manual containing detailed information available upon request.

DESCRIPTION:

The SPEED Facility is a high-energy, short-pulse, field-emission electron-beam generator which can also be operated as a bremsstrahlung x-ray source. It was designed and constructed by Sandia Laboratories to provide an energy source of short duration

Performance Characteristics

Nominal Operating Parameters

SIMULATOR: SPI-PULSE 6000
TYPE: Radiation
AGENCY: Spire Corporation
LOCATION: Bedford, MA
POINT OF CONTACT: Dr. Ward Halverson
Spire Corporation
Patriots Park
Bedford, MA 01730
Phone: (617) 275-6000

DESCRIPTION:

The energy store of this machine is a statically charged solid dielectric transmission line which is discharged into the load

SIMULATOR: Steady State Neutron Generator (SNG)
TYPE: Radiation
AGENCY: US Army
LOCATION: Nuclear Weapons Effects Laboratory
White Sands Missile Range, NM
POINT OF CONTACT: Nuclear Weapons Effects Laboratory
STEWART-TE-AN (Mr. Penny)
White Sands Missile Range, NM 88302
Phone: (505) 678-1161
Autovon: 258-1161
FTS: 898-1161

DESCRIPTION:

The SNG is a Texas Nuclear Corporation Model 9905..

SIMULATOR: SUPER KUKLA Reactor Facility
TYPE: Radiation
AGENCY: Lawrence Livermore National Laboratory
LOCATION: Nevada Test Site
Area 27
Mercury, Nevada
POINT OF CONTACT: Resident Manager
Lawrence Livermore National Laboratory -
Nevada, P.O. Box 45
Mercury, NV 89023
Phone: (702) 986-0210
FTS: 546-0210

DESCRIPTION:

SUPER KUKLA is a bare, unreflected, unmoderated, uranium metal fast burst reactor. It is used primarily as a fast spectrum neutron pulse source for irradiation of large experimental samples.

SUPER KUKLA has been in an In Standby status since July 1979. The reactor facility is deactivated and preserved. The reactor fuel is in storage at Oak Ridge, TN. Reactivation of the facility to operable status would require at least six months and would cost approximately \$300,000 - \$500,000.

SIMULATOR: University of Texas (UT) at Austin
TRIGA Mark I

TYPE: Radiation

AGENCY: UT at Austin

LOCATION: UT Austin, TX

POINT OF CONTACT: Dr. E. L. Draper or Mr. Joseph A. Burack
University of Texas Main Campus
Taylor Hall 131
Austin, TX

DESCRIPTION:

The facility uses a TRIGA Mark I reactor. The fuel is 20% enriched uranium in a ZrH_2 . Other experimental devices at the laboratory include a subcritical assembly, a 2000 curie Cobalt-60 irradiator, and a neutron beam irradiation facility.

SIMULATOR: University of Wisconsin TRIGA Nuclear
Reactor Facility.

TYPE: Radiation

AGENCY: University of Wisconsin

LOCATION: University of Wisconsin, Madison, Wisconsin

POINT OF CONTACT: R. J. Cashwell
141 Mechanical Engineering Bldg.
University of Wisconsin
Madison, Wisconsin 53706

DESCRIPTION:

This is a ^{235}U - $^{238}\text{ZrH}_2$ fueled TRIGA type thermal reactor immersed in a pool with four 6 inch beam ports, a thermal column, and in-pool irradiation facilities. The reactor is capable of 1,000 KW steady state operation with pulses up to 900 MW with 15 millisecond pulse width. The reactor can provide approximately 4 highly reproducible pulses/hour.

SIMULATOR: Washington State University (WSU) Reactor
TYPE: Radiation
AGENCY: Washington State University (WSU)
LOCATION: Washington State University, Pullman, WA
POINT OF CONTACT: William E. Wilson or Thomas A. Lovas
Nuclear Radiation Center
Washington State University
Pullman, WA 99164
Phone: (509) 335-8641

DESCRIPTION:

The reactor is a TRIGA type reactor. The core consists of 110 fuel rods in 4 clusters of which 35 are FLIP rods and 75 are TRIGA-standard rods. The average peak power during pulsing is limited to 625 MW. Pulsing activities have been limited primarily to engineering laboratory studies on pulse characteristics and parameters, and test and demonstration pulse.

II BLAST AND SHOCK

SIMULATOR: SRII Blast/Fire Shock Tube
TYPE: Blast/Thermal
AGENCY: Stanford Research Institute International (SRII)
LOCATION: Camp Parks, CA
POINT OF CONTACT: Ray Alger
SRII
333 Ravenswood Avenue
Menlo Park, CA 94025
Phone: (415) 859-2827

DESCRIPTION:

The facility is designed for testing blastwave interactions with pre-ignited, burning objects. A telescoping test section allows the test object to be ignited or thermally radiated while unconfined then enclosed in the blast tube for airblast loading.

SIMULATOR: Blast Load Generator (BLG)
TYPE: Blast and Shock
AGENCY: Ogden Air Logistics Center
LOCATION: Hill Air Force Base, Utah
POINT OF CONTACT: Little Mountain Facility Manager
Hill AFB, UT 84056
Phone: (801) 777-8348
Autovon: 458-8248

DESCRIPTION:

The Blast Load Generator (BLG) is a nuclear effects overpressure test chamber.

SIMULATOR: C² Simulator
TYPE: Blast & Shock
AGENCY: US Air Force (AFWL)
LOCATION: Kirtland AFB, NM
POINT OF CONTACT: Mr. Ken Simmons
Civil Engineering Research Facility (CERF)
Kirtland AFB, NM 87115
Phone: (505) 244-0676
Autovon: 244-0676

DESCRIPTION:

The C² simulator (Foam-HEST cylindrical calibrator) is a laboratory-scale device designed to measure the resultant pressure-time environment produced by various foam/explosive configurations.

SIMULATOR: CALSPAN In-Flight Blast Simulator
TYPE: Blast
AGENCY: CALSPAN Corporation
LOCATION: CALSPAN Corporation
Buffalo, NY
POINT OF CONTACT: Mr. Robert P. Harper
Head of In-Flight Research Department
CALSPAN Corporation
4455 Denessee Street
P.O. Box 400
Buffalo, NY 14225
Phone: (716) 631-6836

DESCRIPTION:

The facility combines a blowdown wind tunnel with a blast simulator for simultaneous aerodynamic and blast loading.

SIMULATOR: Combined Response Effects Simulator
Tester (CREST)

TYPE: Shock

AGENCY: Air Force

LOCATION: AFWL Material Response Impact Facility
Kirtland AFB, NM

POINT OF CONTACT: Captain Werner Krutzler AFWL/NTYV
Kirtland AFB, NM 87115
Phone: (505) 844-1781
Autovon: 244-1781

SIMULATOR: Compressed Gas Guns (AFWL)
TYPE: Shock (Impulse Loading)
AGENCY: Air Force (AFWL)
LOCATION: AFWL Material Response Impact Facility
Kirtland AFB, NM
POINT OF CONTACT: Captain Werner Krutzier AFWL/NTYV
Kirtland AFB, NM 87115
Phone: (505) 844-1781
Autovon: 244-1781

DESCRIPTION:

There are two gas guns located at the facility.

SIMULATOR: DASACON Shock Tube
TYPE: Blast
AGENCY: US Navy
LOCATION: NSWL Dahlgren, VA
POINT OF CONTACT: Commander
Naval Surface Weapons Laboratory
ATTN: Edmund Parry (G-32)
Dahlgren, VA
Phone: (703) 663-8493

DESCRIPTION:

This facility consists of a conical shock tube driven by high explosives placed in four tandem 0.406M diameter naval guns. The overall length is 748M. Test areas are located 305, 458, and 671M from the vertical cone apex. The test section is 7.3M in diameter at the exit. The driver is 56.7M in length. Up to 85 percent of the driver volume is filled with explosive. A very smooth friedlander pressure profile is produced in the intermediate section of the cone. The tube has a capability of producing an overpressure of 120 kPa. A rarefaction wave eliminator consists of a large flat plate mounted on a rail car just beyond the simulator exit. The facility is operational, but has been inactive since 1971.

SIMULATOR: Genisco Rotary Accelerator (AFWL)
TYPE: Centrifuge
AGENCY: US Air Force (AFWL)
LOCATION: Kirtland AFB, NM, Building 1001
POINT OF CONTACT: Mr. Pete Adams
Civil Engineering Research Facility (CERF)
Kirtland AFB, NM 87115
Phone: (505) 844-8180
Autovon: 244-8180

DESCRIPTION:

The centrifuge simulator is a 30,000 g-pound centrifuge capable of accelerating relatively large items up to 100g.

SIMULATOR: Giant Reusable Airblast Simulator (GRABS)
TYPE: Airblast
AGENCY: US Air Force (AFWL)
LOCATION: Kirtland AFB, NM
POINT OF CONTACT: Mr. Ken Simmons
Civil Engineering Research Facility (CERF)
Kirtland AFB, NM 87115
Phone: (505) 844-0676
Autovon: 244-0676

SIMULATOR: High Explosive Model Structures Simulator (HEMSS)

TYPE: Blast and Shock

AGENCY: Physics International Company/
Merritt CASES, Inc.

LOCATION: Fielded at U.S. Government-approved test
sites, including the PI Tracy Test Site,
Tracy, CA

POINT OF CONTACT: Physics International Company
ATTN: Jeffrey M. Thomsen
Shock Simulation and Reactive Systems Department
Nuclear Effects Division
2700 Merced Street
Phone: (415) 577-7213

Merritt CASES, Inc.
ATTN: Dr. J. L. Merritt
700 Brookside Avenue
P.O. Box 1206
Redlands, CA 92373
Phone: (714) 793-2027

DESCRIPTION:

The HEMSS technique used fast-burning propellants as a pressure source for loading a testbed containing small-scale (5/8 to 4 inch diameter) model structures.

SIMULATOR: Little Mountain Shock and Vibration
Laboratory

TYPE: Shock

AGENCY: US Air Force

LOCATION: Hill Air Force Base, Utah

POINT OF CONTACT: Facility Manager
Little Mountain
Hill Air Force Base, Utah 84056
Phone: (801) 777-8248
Autovon: 458-8248

SIMULATOR: Lovelace 3.05M Blast Simulator
TYPE: Blast
AGENCY: Lovelace Biomedical and Environmental
Research Institute
LOCATION: Kirtland AFB, NM
POINT OF CONTACT: Lovelace Biomedical and Environmental
Research Institute
ATTN: Dr. Royce Fletcher
Kirtland AFB, NM 87115
Phone: (505) 844-6576

DESCRIPTION:

This is a three-stage shock tube

SIMULATOR: Magnetically and Gas Driven Flyer
Plates (KSC)

TYPE: Shock (Impulse)

AGENCY: Kaman Sciences Corporation (KSC)

LOCATION: Colorado Springs, CO

POINT OF CONTACT: Mr. Glenn Roark
Kaman Sciences Corporation
1500 Garden of the Gods Road
P.O. Box 7436
Colorado Springs, CO 80933
Telephone (303) 599-1585

DESCRIPTION:

KSC has three operational, magnetically driven flyer plate facilities.



11



SIMULATOR: Multiburst Airblast Test Facility
TYPE: Blast and Shock
AGENCY: Physics International Company (PI)
LOCATION: PI Tracy Test Site, Tracy, CA
POINT OF CONTACT: Physics International Company
ATTN: Mr. Fred M. Sauer, Chief Scientist
2700 Merced Street
San Leandro, CA 94577
Phone: (415) 577-7159

DESCRIPTION:

The Multiburst Test Facility uses a reinforced concrete pad to test 8-lb high-explosive spheres in air at various heights of burst. One to six charges can be fired simultaneously or nonsimultaneously in triangular or hexagonal patterns. Numerous pressure gage ports within the pad allow airblast pressure measurements to be made at the pad surface. Two gage lines extend beyond the pad, enabling measurement of the free-field airblast from single or multiple charge arrays.

SIMULATOR: Near Source Simulator (NSS)

TYPE: Blast and Shock

AGENCY: Physics International Company

LOCATION: Fielded at U.S. Government-approved
test sites

POINT OF CONTACT: Physics International Company
ATTN: Jeffrey M. Thomsen
Shock Simulation and Reactive
Systems Department
2700 Merced Street
San Leandro, CA. 94577
(415) 577-7213

SIMULATOR: NSWC 0.76m Conical Shock Tube (CST)
TYPE: Blast and Shock/Thermal
AGENCY: US Navy
LOCATION: Naval Surface Weapons Center
POINT OF CONTACT: Commander
Naval Surface Weapons Center
ATTN: Dr. Kurt Enkenhus (Code F30)
Bldg 130, Room 107
White Oak, Silver Spring, MD 20910
Phone: (301) 394-2065

DESCRIPTION:

The firing chamber is a surplus naval gun with nondiverging walls 8.24m long. High explosive is detonated in the firing chamber to produce the blastwave. The conical section is 54.9m long with an exit diameter of 0.762m. A thermal source is produced by burning propellant in a rectangular mount held in a tube gap near the shock exit.

SIMULATOR: Partially Vented Chamber
TYPE: Blast
AGENCY: Southwest Research Institute
LOCATION: San Antonio, TX
POINT OF CONTACT: Southwest Research Institute
Director
Department of Energetic Systems
ATTN: Mr. A. B. Wenzel
6220 Culebra Road
San Antonio, TX 78284
Phone: (512) 684-5111 extension 2311

DESCRIPTION:

The overall length of the chamber is 1.83M. The test section is a 0.92M cube. The driver is a cube 0.92M on a side with perforations on five sides. The drive joins to the test section on the sixth side. High explosives are detonated in the driver.

SIMULATOR: Permanent High Explosive Test Site (PHETS)
TYPE: Blast and Shock
AGENCY: DAF
LOCATION: White Sands Missile Range
POINT OF CONTACT: Commander
Field Command, DNA
AFIN: FCTE (Capt Pavelko)
Kirtland AFB, NM 87115
Phone: (505) 844-8251
Autovon: 244-8251

DESCRIPTION:

FCDNA operates a Permanent High Explosive Test Site (PHETS) at White Sands Missile Range. Permanent (reusable) facilities include a 10 office trailer Administrative Park and 3 Instrumentation Parks (21 van total capacity) all with hard wire A.C. electrical power.

SIMULATOR: Shock Block

TYPE: Blast and Shock

AGENCY: Physics International Company

LOCATION: Demonstration Facility located at the
U.S. Navy West Coast Shock Test Facility,
Hunters Point, San Francisco, CA

POINT OF CONTACT: Physics International Company
ATTN: Jeffrey M. Thomsen
Shock Simulation and Reactive
Systems Department
Nuclear Effects Division
2700 Merced Street
San Leandro, CA 94577
Phone: (415) 577-7213

SIMULATOR: Shock Tubes (AFWL)
TYPE: Blast and Shock
AGENCY: US Air Force (AFWL)
LOCATION: Kirtland AFB, NM
POINT OF CONTACT: Dr. Neal Baum
Civil Engineering Research Facility (CERF)
Kirtland AFB, NM 87115
Phone: (505) 0253
Autovon: 246-0253

DESCRIPTION:

Six shock tube simulators are located at the CERF on Kirtland AFB, NM.

SIMULATOR: Shock Tubes (BRL)
TYPE: Blast and Shock
AGENCY: US Army (Ballistics Research Lab)
LOCATION: Aberdeen Proving Ground, MD
POINT OF CONTACT: Fritz Oertel, Ballistic Research Lab (BRL)
Aberdeen Proving Ground, MD
Phone: (301) 278-4914
Autovon: 283-4914

DESCRIPTION:

An 8 foot (2.44 meter) and a 5.5 foot (1.68 meter) diameter shock tube can be used together or separately to test blast and shock effects

SIMULATOR: Standoff Airblast Simulator (STARS)

TYPE: Blast and Shock

AGENCY: Physics International Company

LOCATION: Fielded at U.S. Government-approved test sites

POINT OF CONTACT: Physics International Company
ATTN: H. Wayne Wampler
Shock Simulation and Reactive Systems Department
Nuclear Effects Division
2700 Merced Street
San Leandro, CA 94577
Phone: (415) 357-4610 extension: 2348

SIMULATOR: Tracy Test Site
TYPE: Blast and Shock
AGENCY: Physics International
LOCATION: Tracy, CA
POINT OF CONTACT: Physics International
ATTN: Mr. Ronald J. Funston
Ordnance Division
2700 Merced Street
San Leandro, CA 94577
Phone: (415) 357-4610, Ext 2384

DESCRIPTION:

PI's main facilities for conducting explosive experiments are located at the 480 acre remote test site (10,000 pound firing capability) near Tracy, California.

III EMP

NAME: Advanced Research EMP Simulation (ARES) Facility
TYPE: EMP
AGENCY: Defense Nuclear Agency
LOCATION: Kirtland AFB, NM
POINT OF CONTACT: Field Command, Defense Nuclear Agency
(FCDNA) Test Operations Division (FCTO)
(Maj David Lange)
Kirtland AFB, NM 871-15
Telephone: (505) 844-6578
Autovon: 244-6578
FTS: 844-6578

DESCRIPTION:

The ARES facility is a medium to large volume, bounded-wave, electromagnetic pulse (EMP) simulator used to expose test objectives to the simulated effects of high altitude EMP (HEMP).

31

SIMULATOR: AFWL Los Alamos EMP Calibration and
Simulation (ALECS) Facility

TYPE: EMP

AGENCY: US Air Force

LOCATION: Kirtland, AFB, NM

POINT OF CONTACT: Air Force Weapons Laboratory (AFWL) Nuclear
Technology Office (NT)
(Mr. L. Contreras)
Kirtland AFB, NM 87117
Phone: (505) 844-0576
Autovon: 244-0576
FTS: 844-0576

DESCRIPTION:

The ALECS facility is a medium volume, bounded wave, electromagnetic pulse (EMP) simulator used to expose test objects to the simulated effects of high altitude EMP (HEMP).

SIMULATOR: CW Measurement System (CWMS)
TYPE: EMP
AGENCY: Defense Nuclear Agency
LOCATION: Transportable.
POINT OF CONTACT: Defense Nuclear Agency
ATTN: RAEE (Lt Col Williams)
6801 Telegraph Road
Alexandria, VA 22310

SIMULATOR: EMP Direct Drive Facility
TYPE: EMP
AGENCY: US Air Force
LOCATION: Ogden Air Logistics Center, Hill AFB, UT
POINT OF CONTACT: OO-ALC/MMGREH
ATTN: Rex Bean
Hill AFB, UT 84056
Phone: (801) 777-7274
Autovon: 458-7274

SIMULATOR: EMP Radiation Environment Simulator for Ships
(EMPRESS)

TYPE: EMP

AGENCY: US Navy

LOCATION: Solomons Branch NSWC, Solomons, MD

POINT OF CONTACT: Naval Surface Weapons Center (NSWC)
White Oak Laboratory
EMP Branch
ATTN: William C. Emberson
Code F-32
Silver Spring, MD 20910
Phone: (202) 394-1946
Autovon: 290-1946

DESCRIPTION:

The EMPRESS facility is a radiating electromagnetic pulse (EMP) simulator used to expose test objects to the simulated effects of high-altitude EMP (HEMP).

SIMULATOR: Horizontally Polarized Dipole (HPD) Facility
TYPE: EMP
AGENCY: US Air Force
LOCATION: Kirtland AFB, NM
POINT OF CONTACT: Air Force Weapons Laboratory (AFWL) Nuclear
Technology Office (NT)
(Mr. L. Contreras)
Kirtland AFB, NM 87117
Phone: (505) 844-0576
Autovon: -244-0576
FTS: 844-0576

DESCRIPTION:

The HPD facility is classified as a hybrid electromagnetic pulse (EMP) simulator which means that it embodies features of both radiating and bounded wave EMP simulators.

SIMULATOR: KAYAK (Small Parallel-Plate EMP Simulator)

TYPE: EMP

AGENCY: IRT Corporation

LOCATION: San Diego, CA

POINT OF CONTACT: IRT Corporation
7650 Convoy Court
P.O. Box 80817
ATTN: Bruce Harlacher
San Diego, CA 92138
Phone: (714) 565-7171

DESCRIPTION:

This is a very small volume, bounded-wave electromagnetic pulse (EMP) simulator used to expose test objects to the simulated effects of high-altitude EMP (HEMP).

SIMULATOR: Large Indoor Parallel-Plate EMP Simulator
TYPE: EMP
AGENCY: IRT Corporation
LOCATION: San Diego, CA
POINT OF CONTACT: IRT Corporation
7650 Convoy Court
P.O. Box 80817
ATTN: Bruce Harlacher
San Diego, CA 92138
Phone: (619) 565-7171

DESCRIPTION:

This facility is a small to medium volume, bounded-wave electromagnetic pulse (EMP) simulator used to expose test objects to the simulated effects of high altitude EMP (HEMP).

SIMULATOR: Long Wire Facility
TYPE: EMP
AGENCY: Martin Marietta Corporation
LOCATION: Orlando, FL
POINT OF CONTACT: Martin Marietta Corporation
Orlando Aerospace
ATTN: Dr. Carrell Whitescover
MP-399
P.O. Box 5837
Orlando, FL 32855
Phone: (305)

DESCRIPTION:

The Martin Marietta Long Wire Facility is a horizontally-polarized, radiating antenna, electromagnetic pulse (EMP) simulator used to expose test objects to the simulated effects of high altitude EMP (HEMP).

SIMULATOR: Medium Size Parallel-Plate EMP Simulator
TYPE: EMP
AGENCY: IRT Corporation
LOCATION: San Diego, CA
POINT OF CONTACT: IRT Corporation
7650 Convoy Court
P.O. Box 80817
ATTN: Bruce Harlacher
San Diego, CA 92138
Phone: (619) 565-7171

DESCRIPTION:

This is a small to medium volume, bounded-wave electromagnetic pulse (EMP) simulator used to expose test objects to the simulated effects of high-altitude EMP (HEMP).

SIMULATOR: Parallel-Plate EMP Simulator

TYPE: EMP

AGENCY: US Navy

LOCATION: China Lake, CA

POINT OF CONTACT: Naval Weapons Center
Code: 3525
ATTN: Frank Harris
China Lake, CA 93555
Phone: (714) 939-3614
Autovon: 437-3614

DESCRIPTION:

This facility is a small to medium volume, bounded-wave electromagnetic pulse (EMP) simulator used to expose test objects to the simulated effects of high altitude EMP (HEMP).

SIMULATOR: . Repetitive EMP Simulator (REPS)
TYPE: EMP
AGENCY: US Army
LOCATION: Transportable; kept at HDL Woodbridge
Research Facility
POINT OF CONTACT: Commander
Harry Diamond Laboratories
ATTN: DELMD-MW-EE (W. Petty)
2800 Powder Mill Road
Adelphi, MD 20783
Phone: (703) 490-2505
Autovon: 356-2505

DESCRIPTION:

The REPS is an intermediate size, transportable, radiating, electromagnetic pulse (EMP) simulator used to expose test objects to the simulated effects of high altitude EMP (HEMP).

SIMULATOR: Repetitive Pulse Generator (RPG)

TYPE: EMP

AGENCY: US Army

LOCATION: Transportable; kept at HDL Woodbridge Research Facility

POINT OF CONTACT: Commander
Harry Diamond Laboratories
ATTN: DELHD-NW-EE (W. Petty)
2800 Powder Mill Road
Adelphi, MD 20783
Phone: (703) 490-2505
Autovon: 356-2505

DESCRIPTION:

The RPG is a small, transportable, radiating, electromagnetic pulse (EMP) simulator used to expose test objects to the simulated effects of high altitude EMP (HEMP).

SIMULATOR: "Suitcase" Pulser
TYPE: EMP
AGENCY: US Army
LOCATION: Transportable (Stored at HDL Woodbridge, VA
Research Facility)
POINT OF CONTACT: Commander
Harry Diamond Laboratories
ATTN: DFLHD-NW-EE (W. Petty)
2800 Powder Mill Road
Adelphi, MD 20783
Phone: (703) 490-2505
Autovon: 356-2505

DESCRIPTION:

The "Suitcase" Pulser system is a portable, radiating electromagnetic pulse (EMP) simulator used to expose test objects to the simulated effects of high-altitude EMP (HEMP).

SIMULATOR: Transportable EMP Simulator (TEMPS)

TYPE: EMP

AGENCY: Defense Nuclear Agency/US Army

LOCATION: Transportable, maintained by HDL

POINT OF CONTACT: Commander
Harry Diamond Laboratories
ATTN: DELHD-NW-EE (W. Petty)
2800 Powder Mill Road
Adelphi, MD 20783
Phone: (703) 490-2505
Autovon: 356-2505

DESCRIPTION:

The TEMPS is a large, hybrid (radiating/transmission line) electromagnetic pulse (EMP) simulator used to expose test objects to the simulated effects of high-altitude EMP (HEMP).

SIMULATOR: TRESTLE Facility
TYPE: EMP
AGENCY: US Air Force
LOCATION: Kirtland AFB, NM
POINT OF CONTACT: Air Force Weapons Laboratory (AFWL) Nuclear
Technology Office/System Support Branch (NT)
(Mr. L. Contreras)
Kirtland AFB, NM 87117
Phone: (505) 844-0576
Autovon: 244-0576
FTS: 844-0576

DESCRIPTION:

The TRESTLE facility is a large volume, bounded wave, electromagnetic pulse (EMP) simulator used to expose test objects to the simulated effects of high altitude EMP (HEMP).

SIMULATOR: Vertical EMP Simulator (VEMPS)
TYPE: EMP
AGENCY: US Army
LOCATION: HDL Woodbridge, VA, Research Facility
POINT OF CONTACT: Commander
Harry Diamond Laboratories
ATTN: DELHD-NW-EE (W. Petty)
2800 Powder Mill Road
Adelphi, MD 20783
Phone: (703) 490-2505
Autovon: 356-2505

DESCRIPTION:

The VEMPS facility is a radiating electromagnetic pulse (EMP) simulator used to expose test objects to the simulated effects of high altitude EMP (HEMP).

SIMULATOR: Vertically Polarized Dipole (VPD-II) Facility
TYPE: EMP
AGENCY: US Air Force
LOCATION: Kirtland AFB, NM
POINT OF CONTACT: Air Force Weapons Laboratory (AFWL)
Nuclear Technology Office (NT)
(Mr. L. Contreras)
Kirtland AFB, NM 87117
Phone: (505) 844-0576
Autovon: 244-0576
FTS: 844-0576

DESCRIPTION:

The VPD II facility is a radiating electromagnetic pulse (EMP) simulator used to expose test objects to the simulated effects of high-altitude EMP (HEMP).

SIMULATOR: White Sands EMP Systems Test Array (WESTA)
TYPE: EMP
AGENCY: US Army
LOCATION: White Sands Missile Range, NM
POINT OF CONTACT: Nuclear Weapons Effects Laboratory
STEW-TE-N (Mr. Perny), WSMR, NM 88002
Phone: (505) 678-1161
Autovon: 258-1152
FTS: 898-1161

DESCRIPTION:

The White Sands EMP Systems Test Array (WESTA) is a large volume, bounded wave, electromagnetic pulse (EMP) simulator used to expose test objects to the simulated effects of high altitude EMP (HEMP).

IV THERMAL

SIMULATOR: DNA Thermal Radiation Source
TYPE: Thermal
AGENCY: DNA
LOCATION: Kirtland AFB, NM
POINT OF CONTACT: Commander
Field Command, DNA
ATTN: ECTOH (LCDR Taylor)
Kirtland AFB, NM 87115
Phone: (505) 844-4651
Autovon: 244-4651
FTS: 844-0576

DESCRIPTION:

The TRS operates on an outdoor testbed and consists of a linear array of four upward-directed nozzles each of which produces a flame two meters in diameter and six meters high.

SIMULATOR: Science Applications, Inc. (SAI) High-Flux TPS
TYPE: Thermal
AGENCY: SAI
LOCATION: SAI, McLean, Virginia
POINT OF CONTACT: Science Applications Inc.
ATTN: Dr. Walt Koechner
1710 Goodridge Drive
P.O. Box 1303
McLean, VA 22102
Phone: (703) 827-4762
FTS: (202) 827-4762

DESCRIPTION:

The facility consists of 22 Xenon arch lamps in a 0.01M² array. Power is supplied by a 1000-2000 volt capacitive discharge system.

SIMULATOR: Sandia Thunder Range Blast Simulators
TYPE: Blast
AGENCY: Department of Energy
LOCATION: Sandia National Laboratories, Albuquerque
POINT OF CONTACT: Sandia National Laboratories
ATTN: John P. Weber (Div 7533)
Albuquerque, NM 87185

DESCRIPTION:

Sandia National Laboratories has operated a variety of explosively-driven blast simulators since 1965. Blast tubes of 0.3, 0.6, 1.8, 3.7, and 5.8 m-diameter can be assembled in a number of configurations to simulate a variety of blast conditions for test items of various sizes.

SIMULATOR: TRI-Service Thermal Radiation Facility
TYPE: Thermal
AGENCY: DNA
LOCATION: Wright-Patterson AFB, OH
POINT OF CONTACT: Director
Defense Nuclear Agency
ATTN: SPTD (LTC Flory)
Washington, DC 20305
Phone: (703) 325-7775
Autovon: 221-7775

DESCRIPTION:

The source consists of 24 Westinghouse type T3 tungsten filament quartz lamps (rated at 6kw each at 450 volts) in an area of 0.153M x 0.254M.

SIMULATOR: White Sands Missile Range Solar Facility
TYPE: Thermal
AGENCY: US Army
LOCATION: Nuclear Weapon Effects Laboratory WSMR, NM
POINT OF CONTACT: Nuclear Weapons Effects Laboratory
STEWART-TE-AN (Mr. R. Penny)
WSMR, NM 88002
(505) 678-1161
AUTOVON: 258-1161
FTS: 898-1161

DESCRIPTION:

The White Sands Solar Facility (WSSF) is a focusing-type solar facility capable of providing intense thermal radiation pulses which simulate the thermal environment from a nuclear weapon detonation.

SIMULATOR: Wright-Patterson AFB, Thermal Radiation
Simulators (TRS)

TYPE: Thermal

AGENCY: US Air Force

LOCATION: Wright-Patterson AFB, OH

POINT OF CONTACT: Wright Aeronautical

DESCRIPTION:

US Air Force thermal simulators at Wright-Patterson AFB include a large-area flashlamp bank and a graphite heater.

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